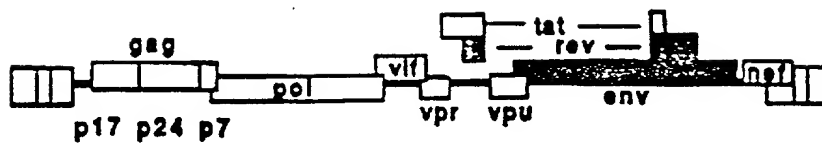


A



B

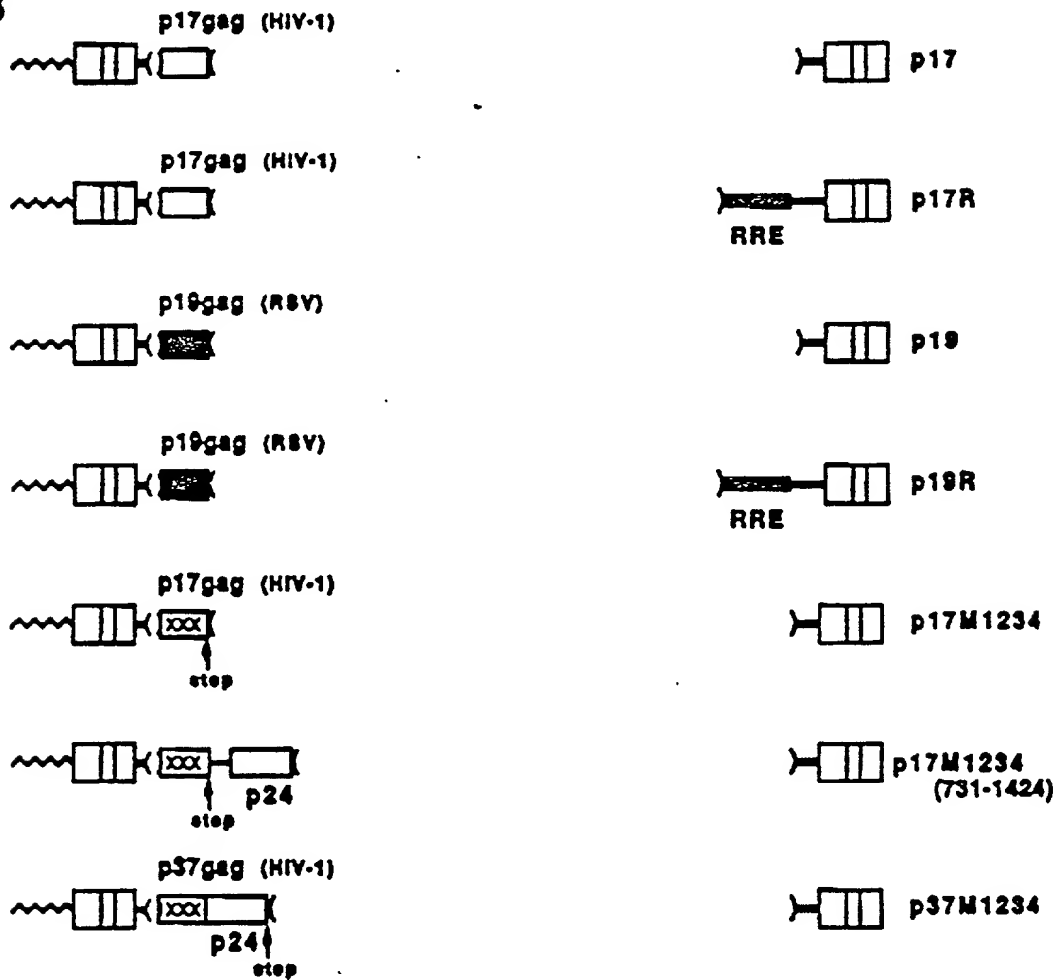


Fig. 1

c

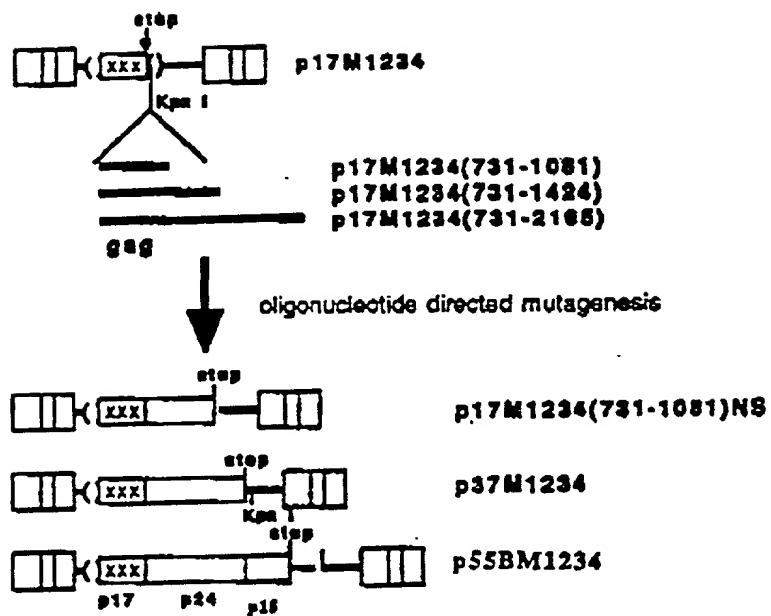
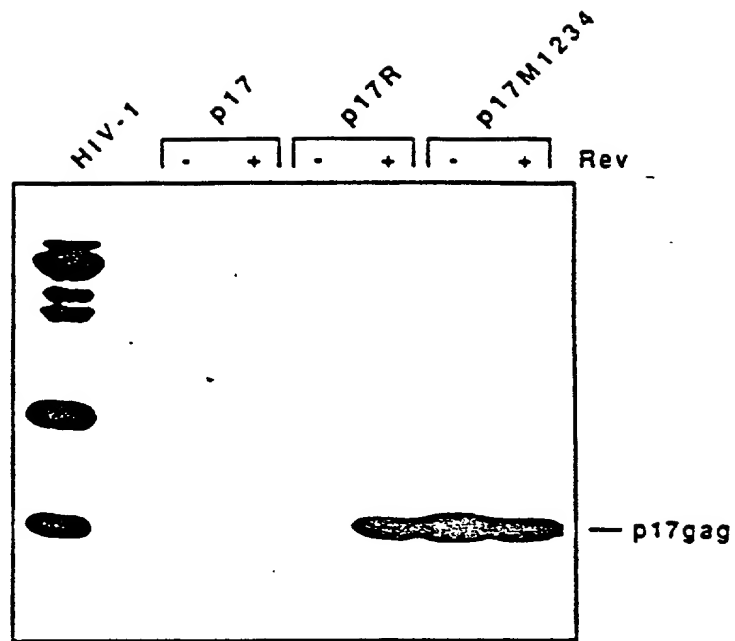


Fig. 1

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A



B

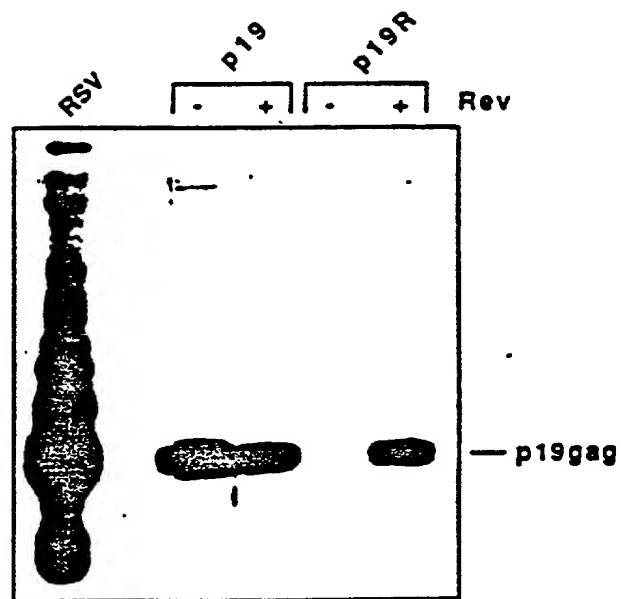
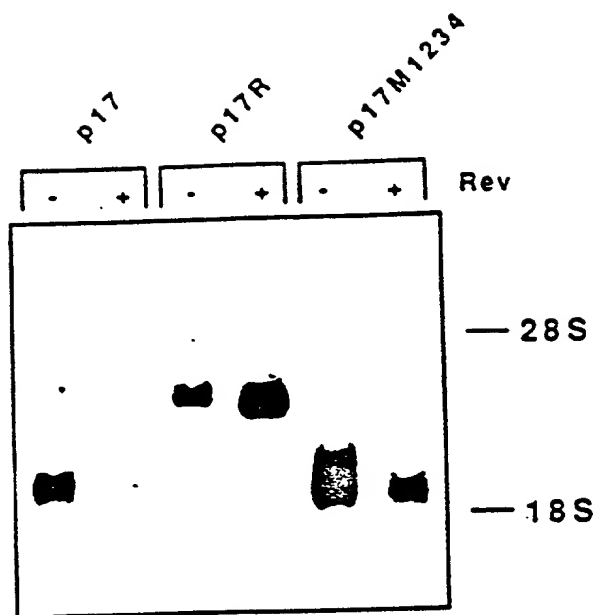


Fig. 2

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A



B

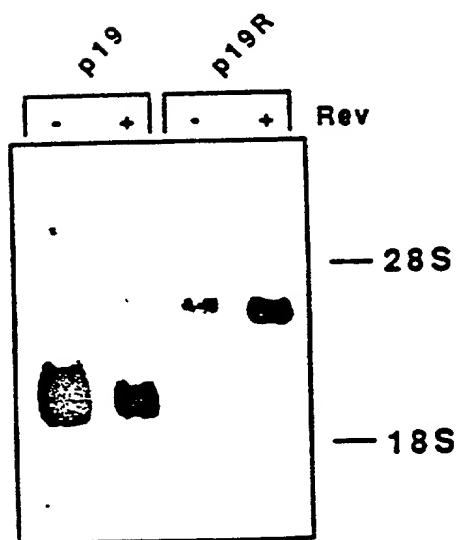
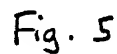
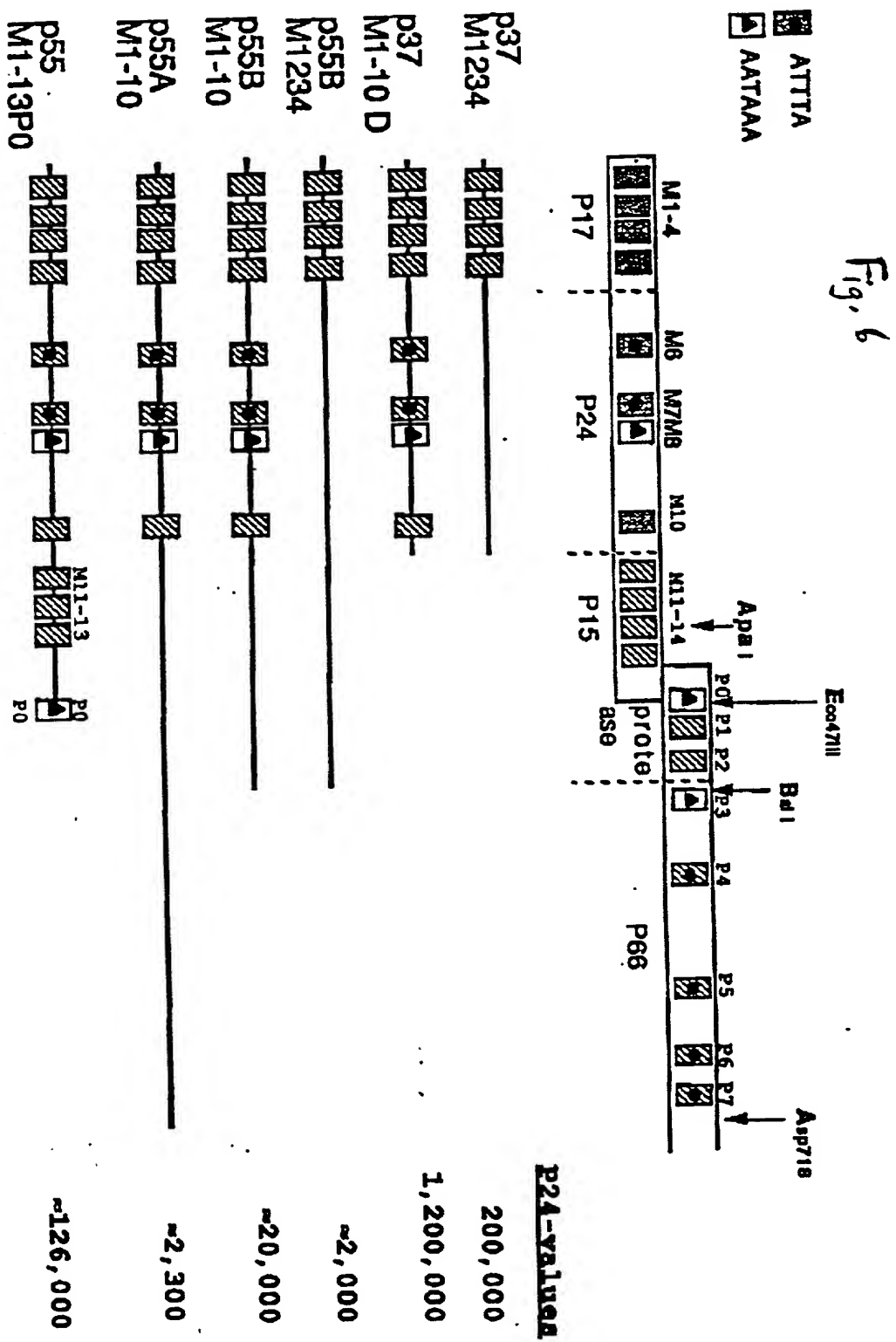


Fig. 3

Fig. 4





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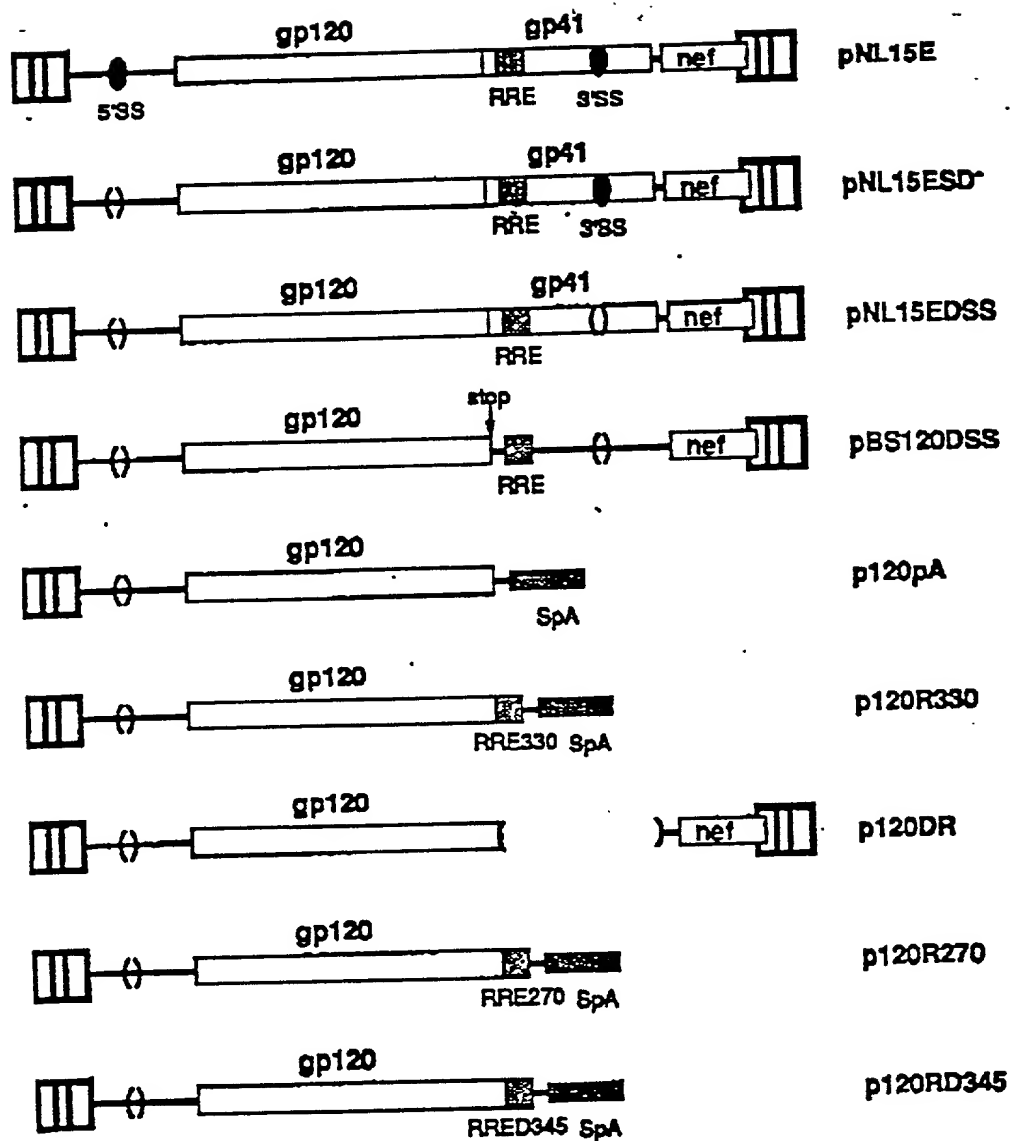


Fig. 7

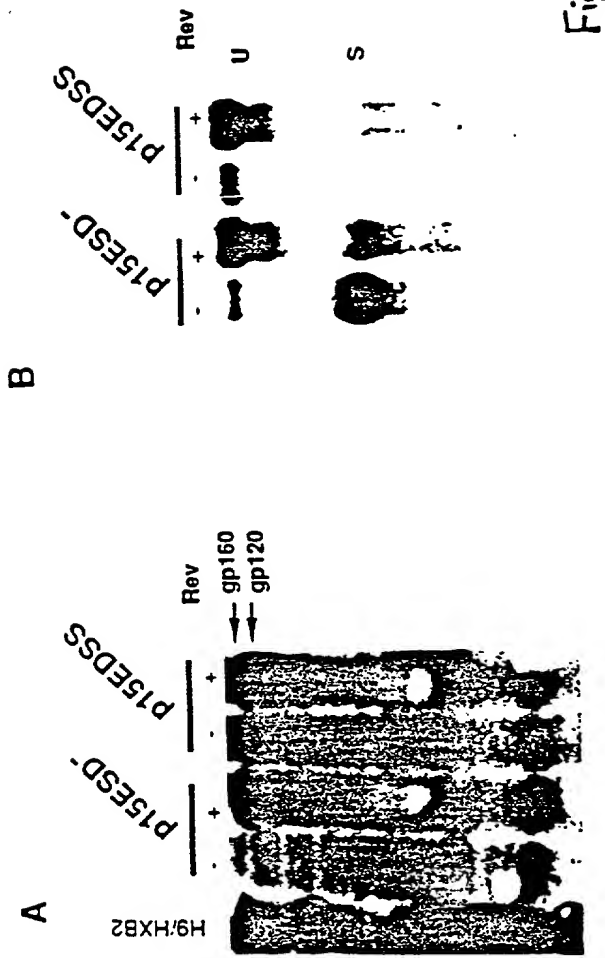
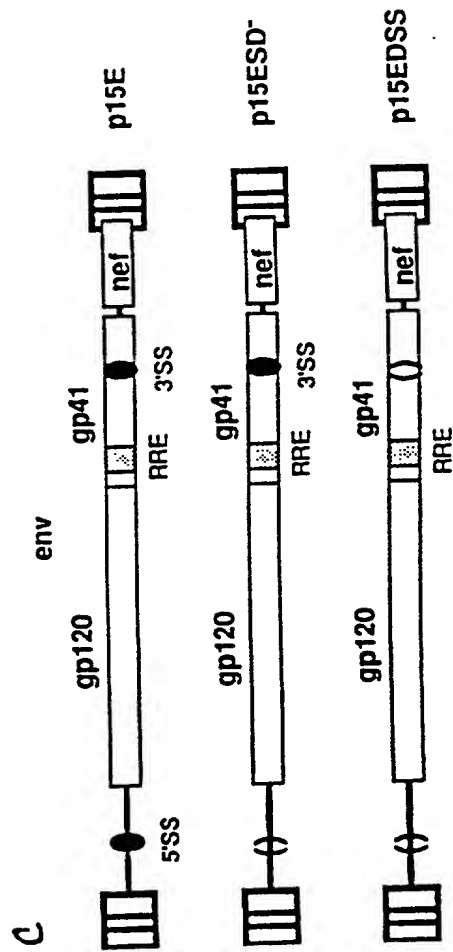


Fig. 8



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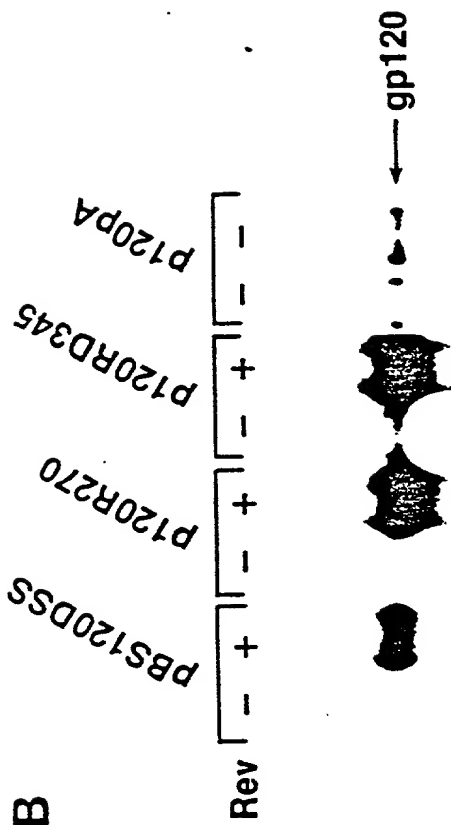
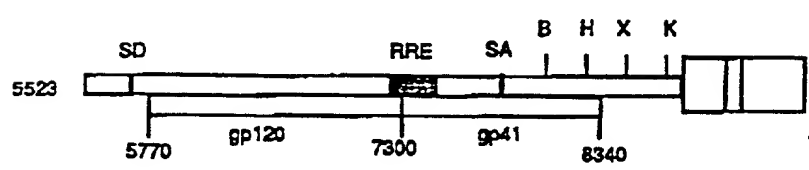


Fig. 9

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Identification of INS regions within the env mRNA using the p19 vector.



| FRAGMENT SIZE | | INS EFFECT | |
|---------------|-----|----------------------|---------|
| A | 276 | 7684-7859 | none |
| B | 234 | 7684-7884, 7927-7959 | none |
| C | 323 | 7595-7884, 7927-7959 | 10 X |
| D | 128 | 7939-8066 | none |
| E | 478 | 7939-8416 | 10 X |
| F | 362 | 8200-8561 | > 100 X |
| G | 330 | 7266-7595 | 3-5X |
| E | 668 | 5523-6190 | 10 X |

Fig. 10

Identification of INS regions within the env mRNA using the p37M1-10D vector.

(fig 5 env,
formerly fig D)

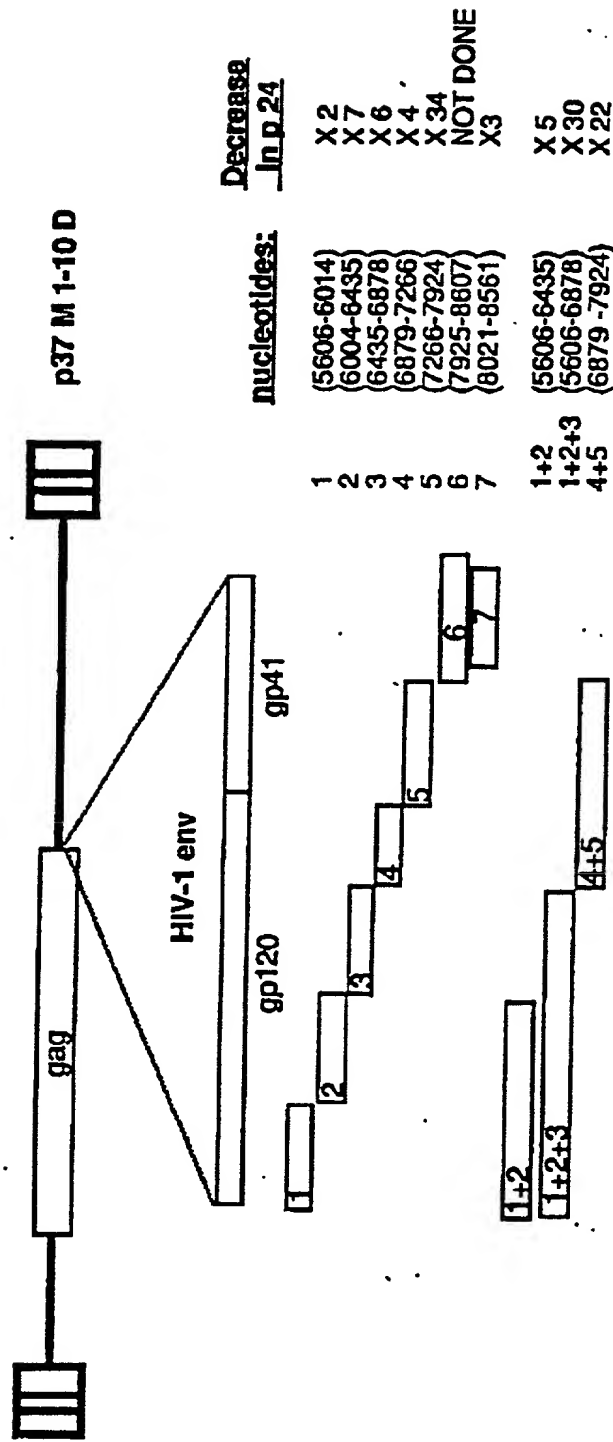
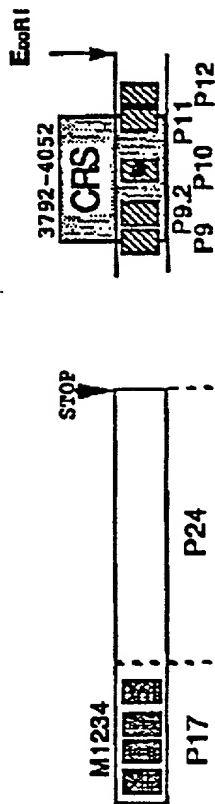


Fig. 11

Elimination of negative effects of CRS

ATTIA



level of P24
expression

| | |
|----------------------|-------|
| p37M1234 | 100 % |
| p37M1234RCRS | 12 % |
| p37M1234RCRSP10 | 10 % |
| p37M1234RCRSP12 | 11 % |
| p37M1234RCRSP10+P12p | 96 % |

Fig. 12

POINT MUTATIONS ELIMINATING THE NEGATIVE EFFECTS OF CRS IN THE *pol* REGION
(nucleotides 3700-4194)

GGTACCAGCACACAAGGAATTGGAGGAATGAACAAGTAGATAAATTAGTCAGTGTGGAATCAGGAAGTACTATTTT
TAGATGGAAATAGATAAGGCCCAAGATGAACATGAGAATATCACAGTAATTGGAGAGCAATGGCTAGTATTTTAACTTG
CCACCTGTAGTAGCAAAAGAANTAGTAGCCAGCTGTGNTAATGTCAGCTAAAGGAGAAGCCATGCATGGACAACTAGA
CTGTAGTCCAGGAATATGGCACTAGATTGTACACATTAGAGGAAAAAGTTATCTTGGTAGCAGTTCATGTAGCCAGTG
g g c c g cc g g g g
GATATATAGAACAGAGTATTCCAGCAGAAACAGGCCAGGAACAGCATATTTCTTTTAAATTAGCAGGAAGATGG
CCAGTAAACAATACATACTGACAAATGGCAGCAATTTACCCGTGCTACGGTTAGGGCCGCTGTTGGTGGCGGGAAT
c g c a c t
CAAGCAGGAATTTGG

Fig. 13

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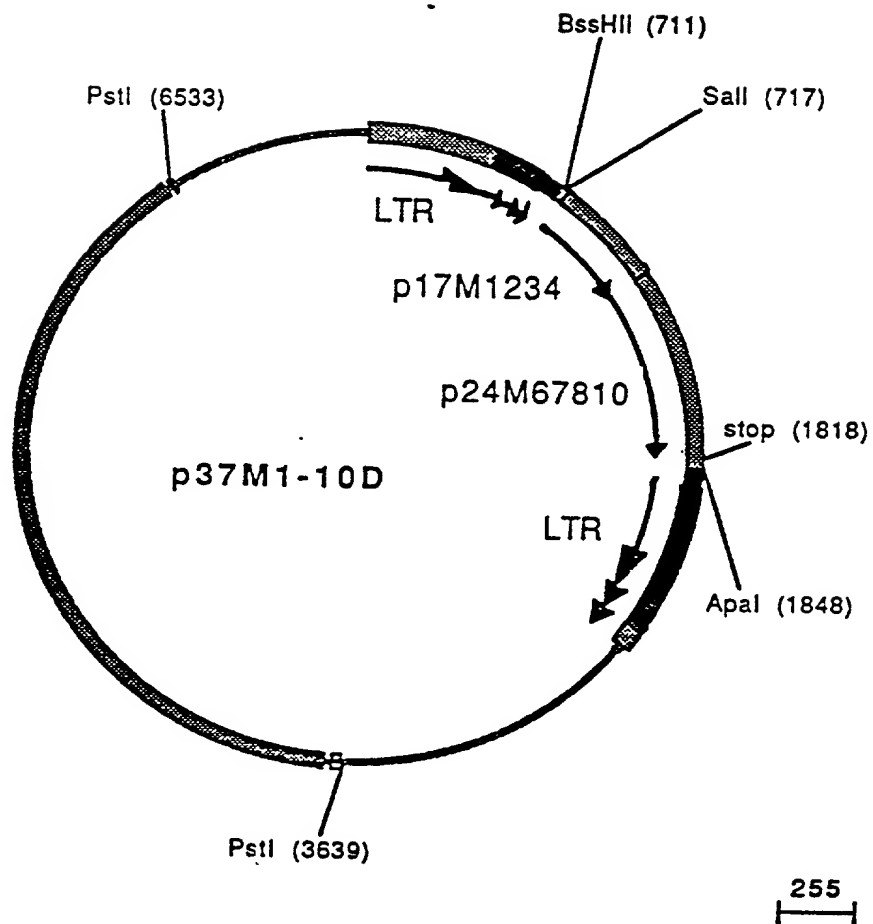


Fig. 14

A

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1 TGGAAGGGCT AATTGGTCC CAAAAAGAC AAGAGATCCT TGATCTGTGG ATCTACCACA CACAAGGCTA
 71 CTTCCCTGAT TGGCAGAACT ACACACCAGG GCCAGGGATC AGATATCCAC TGACCTTTGG ATGGTGCTTC
 141 AAGTTAGTAC CAGTTGAACC AGAGCAAGTA GAAGAGGCCA AATAAGGAGA GAAGAACAGC TTGTTACACC
 211 CTATGAGCCA GCATGGGATG GAGGACCCGG AGGGAGAAGT ATTAGTGTGG AAGTTTGACA GCCTCCTAGC
 281 ATTTGCTCAC ATGGCCCGAG AGCTGCATCC GGAGTACTAC AAAGACTGCT GACATCGAGC TTTCTACAAG
 351 GGACTTTCCG CTGGGGACTT TCCAGGGAGG TGTGGCCTGG GCGGGACTGG GGAGTGGCGA GCCCTCAGAT
 421 GCTACATATA AGCAGCTGCT TTTTGCTGT ACTGGGTCTC TCTGGTTAGA CCAGATCTGA GCCTGGGAGC
 491 TCTCTGGCTA ACTAGGGAAC CCACTGCTTA AGCCTCAATA AAGCTTGCCT TGAGTGTCTA AAGTAGTGTG
 561 TGCCCGTCTG TTGTGTGACT CTGGTAACTA GAGATCCCTC AGACCCTTT AGTCAGTGTG GAAAATCTCT
 631 AGCAGTGGCG CCCGAACAGG GACTTGAAAG CGAAAGTAAA GCCAGAGGAG ATCTCTCGAC GCAGGACTCG
 BssHII (711)
 701 GCTTGCTGAAGCGCGCTCGACAGAGATGGGTGCGAGAGCGTCAGTATTAAGCGGGGAGAATTAGATCGATGG
 1 Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Leu Asp Arg Trp
 777 GAAAAATTCGGTTAAGGCCAGGGGGAAGAAGTACAAGCTAAAGCACATCGTATGGGCAAGCAGGGAGCTAG
 17 Gly Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Tyr Lys Leu Lys His Ile Val Trp Ala Ser Arg Gly Leu G
 853 AACGATTCGAGTTAATCCTGGCCTGTTAGAAACATCAGAAGGCTGTAGACAAATACTGGGACAGCTACAACCATC
 42 Ile Arg Phe Ala Val Asn Pro Gly Leu Leu Glu Thr Ser Gly Gly Cys Arg Gly Ile Leu Gly Ile Leu Glu Pro Ser
 929 CCTTCAGACAGGATCAGAGGAGCTTCGATCACTATACAACACAGTAGCAACCTCTATTGTGTGCACCAGCGGATC
 67 Leu Glu Thr Gly Ser Gly Glu Leu Arg Ser Leu Tyr Asn Thr Val Ala Thr Leu Tyr Cys Val His Glu Arg Ile
 1005 GAGATCAAGGACACCAAGGAAGCTTTAGACAAGATAGAGGAAGAGCAAAACAAGTCCAAGAAGAAGGCCAGCAGG
 93 Gly Ile Lys Asp Thr Lys Gly Ala Leu Asn Lys Ile Gly Glu Glu Glu Asn Lys Ser Lys Lys Lys Ala Glu Glu Asn
 1081 CAGCAGCTGACACAGGACACAGCAATCAGGTGAGCCAAATACCTATAGTGCAGAACATCCAGGGGCAATGGT
 118 Ile Ala Ala Asp Thr Gly His Ser Asn Glu Val Ser Glu Asn Thr Pro Ile Val Glu Asn Ile Glu Gly Ile Met Val
 1157 ACATCAGGCCATATCACCTAGAACTTTAAATGCATGGGTAAAAGTAGTAGAAGAGAAGGCTTTCAGCCAGAAAGT
 11 His Glu Ala Ile Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val Gly Glu Lys Ala Phe Ser Pro Glu Val
 1233 ATACCATGTTTTAGCATTATCAGAAGGAGCCACCCACAGGACCTGAACACGATGTTGAACACCGTGGGGGGAC
 37 Ile Pro Met Phe Ser Ala Leu Ser Gly Glu Ala Thr Pro Glu Asn Leu Asn Thr Met Leu Asn Thr Val Gly Gly H
 1309 ATCAAGCAGCCATGCAAATGTTAAAGAGACCATCAATGAGGAAGCTGCAGAATGGGATAGAGTGCATCCAGTGCA
 62 Ile Glu Ala Ala Met Glu Met Leu Lys Glu Thr Ile Asn Glu Glu Ala Glu Trp Asp Arg Val His Pro Val His
 1385 TGCAGGGCCTATTGCACAGGCCAGATGAGAGAACCAAGGGGAAGTGACATAGCAGGAACCTACTAGTACCCCTTCAG
 87 Ala Glu Pro Ile Ala Pro Gly Glu Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Glu Thr Thr Thr Leu Glu N
 1461 GAACAAATAGGATGGATGACAAATAATCCACCTATCCAGTAGGAGAGATCTACAAGAGGTGGATAATCCTGGGAT
 113 Gly Glu Ile Gly Trp Met Thr Asn Asn Pro Pro Ile Pro Val Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly L
 1537 TGAACAAGATCGTGAGGATGTATAGCCCTACCAGCATTCTGGACATAAGACAAGGACCAAGGAACCCCTTTAGAGA
 138 Leu Asn Lys Ile Val Arg Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Glu Gly Pro Lys Glu Pro Phe Arg As

Fig. 14 B

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1613 CTATGTAGACCGGTTCTATAAACTCTAAGAGCTGAGCAAGCTTCACAGGAGGTAAAAATTGGATGACAGAAACC
 163 pTyrValAspArgPheTyrLysThrLeuArgAlaGluGlnAlaSerGlnGluValLysAsnTrpMetThrGluThr

1689 TTGTTGGTCCAAATGCGAACCCAGATTGTAAGACCATCTGAAGGCTCTCGGCCAGCGGTACACTAGAAGAAA
 189 LeuLeuValGlnAsnAlaAsnProAspCysLysThrIleLeuLysAlaLeuGlyProAlaAlaThrLeuGluGluMet

1765 TGATGACAGCATGTGAGGGAGTAGGAGGACCCGCCATAAGGCAAGAGTTTGTAGGGATCCACTAGTTCTAGACT
 214 etMetThrAlaCysGlnGlyValGlyGlyProGlyHisLysAlaArgValLeu

stop (1818) XbaI (1838)

Apal (1848)

1841 CGAGGGGGGG CCCGGTACCT TTAAGACCAA TGACTTACAA GGCAGCTGTA GATCTTAGCC ACTTTTAA
 1911 AGAAAAGGGG GGACTGGAAG GGCTAATTCA CTCCAAAGA AGACAAGATA TCCTTGATCT GTGGATCTAC
 1981 CACACACAAG GCTACTTCCC TGATTGCCAG AACTACACAC CAGGGCCAGG GGTGAGATAT CCACTGACCT
 2051 TTGGATGGTG CTACAAGCTA GTACCAGTGG AGCCAGATAA GGTAGAAGAG GCCAATAAAG GAGAGAACAC
 2121 CAGCTTGTTA CACCCTGTGA GCCTGCATGG AATGGATGAC CCTGAGAGAG AAGTGTTAGA GTGGAGGTTT
 2191 GACAGCCGCC TAGCATTTC ATCAGTGGCC CGAGAGCTGC ATCCGGAGTA CTTCAAGAAC TGCTGACATC
 2261 GAGCTTGCTA CAAGGGACTT TCCGCTGGGG ACTTCCAGG GAGGCGTGGC CTGGGCGGGA CTGGGGAGTG
 2331 GCGAGCCCTC AGATGCTGCA TATAAGCAGC TGCTTTTTCG CTGTAAGGGG TCTCTCTGGT TAGACCAGAT
 2401 CTGAGCCTGG GAGCTCTCTG GCTAACTAGG GAACCCACTG CTTAAGCCTC AATAAAGCTT GCCTTGAGTG
 2471 CTTCAAGTAG TGTGTGCCCC TCTGTTGTGT GACTCTGGTA ACTAGAGATC CCTCAGACCC TTTTAGTCAG
 2541 TGTGGAAAT CTCTAGCACC CCCAGGAGG TAGAGGTTGC AGTGAGCCAA GATCGCGCCA CTGCATTCCA

PstI (3639)

2611 GCCTGGCAA GAAAACAAGA CTGTCTAAAA TAATAATAAT AAGTTAAGGG TATTAATAT ATTTATACAT
 2681 GGAGGTCATA AAAATATATA TATTTGGGCT GGGCGCAGTG GCTCACACCT GCGCCCGGCC CTTTGGGAGG
 2751 CCGAGGCAGG TGGATCACCT GAGTTTGGGA GTTCCAGACC AGCCTGACCA ACATGGAGAA ACCCCTTCTC
 2821 TGTGTATTT TAGTAGATTT TATTTTATGT GTATTTTATT CACAGGTATT TCTGGAAAAC TGAAACTGTT
 2891 TTTCTCTAC TCTGATACCA CAAGAATCAT CAGCAGAGAG GAAGACTTCT GTGATCAAT GTGGTGGGAG
 2961 AGGGAGGTT TCACCAGCAC ATGAGCAGTC AGTTCTGCCG CAGACTCGGC GGGTGTCTT CGGTTCAAGT
 3031 CCAACACCGC CTGCCTGGAG AGAGGTCAGA CCACAGGGTG AGGGCTCAGT CCCCAGACA TAAACACCA
 3101 AGACATAAAC ACCCAACAGG TCCACCCCGC CTGCTGCCCA GGCAGAGCCG ATTCACCAAG ACGGGAATTA
 3171 GGATAGAGAA AGAGTAAGTC ACACAGAGCC GGCTGTGCGG GAGAACGGAG TTCTATTATG ACTCAATCA
 3241 GTCTCCCAA GCATTGCGG ATCAGAGTTT TTAAGGATAA CTTAGTGTGT AGGGGGCCAG TGAGTTGGAG
 3311 ATGAAAGCGT AGGGAGTCGA AGGTGTCTT TTGCGCCGAG TCAGTTCTG GGTGGGGGCC ACAAGATCGG
 3381 ATGAGCCAGT TTATCAATCC GGGGGTGCCA GCTGATCCAT GGAGTGCAGG GTCTGCAAAA TATCTCAAGC
 3451 ACTGATTGAT CTTAGGTTTT ACAATAGTGA TGTTACCCCA GGAACAATT GGGGAAGGTC AGAATCTGT
 3521 AGCCTGTAGC TGCATGACTC CTAAACCATA ATTTCTTTT TGTTTTTTT TTTTATTTT TGAGACAGGG

3591 TCTCACTCTG TCACCTAGGC TGGAGTGCAG TGGTGCAATC ACAGCTCACT GCAGCCCTA GAGCGGCGC
 3661 CACCGCGGTG GAGCTCCAAT TCGCCCTATA GTGAGTCGTA TTACAATTCA CTGGCCGTCG TTTTACAACG
 3731 TCGTGACTGG GAAAACCTG GCGTTACCCA ACTTAATCGC CTTGCAGCAC ATCCCCCTT CGCCAGCTGG
 3801 CGTAATAGCG AAGAGGCGCG CACCGATCGC CTTCCCAAC AGTTGCGCAG CCTGAATGGC GAATGGCGCG
 3871 AAATTGTAAA CGTTAATATT TGTTAAAA TCGCGTTAAA TTTTGTAA ATCAGCTCAT TTTTAAACCA
 3941 ATAGGCCGAA ATCGGCAAAA TCCCTTATAA ATCAAAAGAA TAGACCGAGA TAGGGTTGAG TGTTGTCCA
 4011 GTTTGGAACA AGAGTCCAT ATTAAGAAG GTGGACTCCA ACGTCAAGG GCGAAAACC GTCTATCAGG
 4081 GCGATGGCCC ACTACGTGAA CCATCACCTT AATCAAGTTT TTTGGGGTCG AGGTGCCGTA AAGCACTAAA
 4151 TCGGAACCTT AAAGGGAGCC CCCGATTAG AGCTTGACGG GGAAAGCGG CGAAGCTGGC GAGAAAGGAA
 4221 GGAAGAAAG CGAAGGAGC GGGCGTAGG GCGCTGGCAA GTGTAGCGGT CACGCTGCGC GTAAACACCA
 4291 CACCCGCGC GCTTAATGCG CCGCTACAGG GCGCGTCCA GGTGGCACTT TTCGGGAAA TGTGCGCGGA
 4361 ACCCTATT GTTTATTTT CTAAATACAT TCAATATGT ATCCGCTCAT GAGACAATAA CCCTGATAAA

Fig. 14 C

4431 TGCTTCAATA ATATTGAAAA AGGAAGAGTA TGAGTATTCA ACATTTCCGT GTCGCCCTTA TTCCCTTTTT
 4501 TGGGGCATTT TGCCCTCCTG TTTTGTCTCA CCCAGAAACG CTGGTGAAAG TAAAAGATGC TGAAGATCAG
 4571 TTGGGTGCAC GAGTGGGTGA CATCGAACTG GATCTCAACA GCGGTAAGAT CCTTGAGAGT TTTCGCCCCG
 4641 AAGAAGCTTT TCCAATGATG AGCACTTTTA AAGTTCTGCT ATGTGGCGCG GTATTATCCC GTATTGACGC
 4711 CGGGCAAGAG CAACTCGGTC GCCGCATACA CTATTCTCAG AATGACTTGG TTGAGTACTC ACCAGTCACA
 4781 GAAAAGCATC TTACGGATGG CATGACAGTA AGAGAATTAT GCAGTGCTGC CATAACCATG AGTGATAACA
 4851 CTGCGGCCAA CTTACTTCTG ACAACGATCG GAGGACCGAA GGAGCTAACC GCTTTTTTGC ACAACATGGG
 4921 GGATCATGTA ACTCGCCTTG ATCGTTGGGA ACCGGAGCTG AATGAAGCCA TACCAAACGA CGAGCGTGAC
 4991 ACCACGATGC CTGTAGCAAT GGCAACAACG TTGCGCAAAC TATTAAGTGG CGAACTACTT ACTCTAGCTT
 5061 CCCGGCAACA ATTAATAGAC TGGATGGAGG CGGATAAAGT TGCAGGACCA CTTCTGCGCT CGGCCCTTCC
 5131 GGCTGGCTGG TTTATTGCTG ATAAATCTGG AGCCGGTGAG CGTGGGTCTC GCGGTATCAT TGCAGCACTG
 5201 GGGCCAGATG GTAAGCCCTC CCGTATCGTA GTTATCTACA CGACGGGGAG TCAGGCAACT ATGGATGAAC
 5271 GAAATAGACA GATCGCTGAG ATAGGTGCCT CACTGATTAA GCATTGGTAA CTGTCAAGAC AAGTTTACTC
 5341 ATATATACTT TAGATTGATT TAAAACTTCA TTTTAAATTT AAAAGGATCT AGGTGAAGAT CCTTTTTGAT
 5411 AATCTCATGA CCAAATCCC TTAACGTGAG TTTTCGTCC ACTGAGCGTC AGACCCCGTA GAAAAGATCA
 5481 AAGGATCTTC TTGAGATCCT TTTTCTCTGC GCGTAATCTG CTGCTTGCAA ACAAAAAAAC CACCGCTACC
 5551 AGCGGTGGTT TGTTTGCCGG ATCAAGAGCT ACCAACTCTT TTTCCGAAGG TAACTGGCTT CAGCAGAGCG
 5621 CAGATACCAA ATACTGTCCT TCTAGTGTAG CCGTAGTTAG GCCACCACTT CAAGAACTCT GTAGCACCGC
 5691 CTACATACCT CGCTCTGCTA ATCCTGTTAC CAGTGGCTGC TGCCAGTGGC GATAAGTCGT GTCTTACCGG
 5761 GTTGGACTCA AGACGATAGT TACCGGATAA GCGCGACGGG TCGGGCTGAA CGGGGGGTTT GTGCACACAG
 5831 CCCAGCTTGG AGCGAACGAC CTACACCGAA CTGAGATACC TACAGCGTGA GCTATGAGAA AGCGCCACGC
 5901 TTCCCGAAGG GAGAAAGCGG GACAGGTATC CGSTAAGCGG CAGGGTCGGA ACAGGAGAGC GCACGAGGGA
 5971 GCTTCCAGGG GGAACGCGCT GGTATCTTTA TAGTCTGTG GGGTTTCGCC ACCTCTGACT TGAGCGTCGA
 6041 TTTTGTGAT GCTCGTCAGG GGGGCGGAGC CTATGGAAAA ACGCCAGCAA CGCGGCCTTT TTACGGTTCC
 6111 TGGCCTTTTG CTGGCCTTTT GCTCACATGT TCTTCTCTGC GTTATCCCTT GATTCTGTGG ATAACCGTAT
 6181 TACCGCCTTT GAGTGAGCTG ATACCGCTCG CCGCAGCCGA ACGACCGAGC GCAGCGAGTC AGTGAGCGAG
 6251 GAAGCGGAAG AGCGCCCAAT ACGCAAACCG CCTCTCCCGG CGCGTTGGCC GATTCAATTA TGCAGCTGGC
 6321 ACGACAGGTT TCCCGACTGG AAAGCGGGCA GTGAGCGCAA CGCAATTAAT GTGAGTTAGC TCACTCATTA
 6391 GGCACCCAG GCTTTACACT TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATTT
 6461 CACACAGGAA ACAGCTATGA CCATGATTAC GCCAAGCTCG GAATTAACCC TCACTAAAGG GAACAAAAGC
 PstI (6533)
 6531 TGCTGCAGGG TCCCTAACTG CCAAGCCCCA CAGTGTGCCC TGAGGCTGCC CCTTCCTTCT AGCGGCTGCC
 6601 CCCACTCGGC TTTGCTTTCC CTAGTTTCAG TTAATTGCGT TCAGCCAAGG TCTGAAACTA GGTGCGCACA
 6671 GAGCGGTAAG ACTGCGAGAG AAAGAGACCA GCTTTACAGG GGGTTTATCA CAGTGCAACC TGACAGTCGT
 6741 CAGCCTCACA GGGGGTTTAT CACATTGCAC CCTGACAGTC GTCAGCTCA CAGGGGGTTT ATCAGAGTGC
 6811 ACCCTTACAA TCATTCCATT TGATTACAAA TTTTTTTAGT CTCTACTGTG CCTAACTTGT AAGTTAAATT
 6881 TGATCAGAGG TGTGTTCCCA GAGGGGAAAA CAGTATATAC AGGGTTCAGT ACTATCGCAT TTCAGGCCTC
 6951 CACCTGGGTC TTGGAATGTG TCCCCGAGG GGTGATGACT ACCTCAGTTG GATCTCCACA GGTACAGTG
 7021 ACACAAGATA ACCAAGACAC CTCCCAAGGC TACCACAATG GGCCGCCCTC CACGTGCACA TGGCCGGAGG
 7091 AACTGCCATG TCGGAGGTGC AAGCACACCT GCGCATCAGA GTCCTTGGTG TGGAGGGAGG GACCAGCGCA
 7161 GCTTCCAGCC ATCCACCTGA TGAACAGAAC CTAGGGAAAG CCCAGTTCT ACTTACACCA GGAAAGGC

Fig. 14 D